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SUGGESTED REMARKS

TWENTIETH ANNIVERSARY OF INTERPLANETARY FLIGHT, NASM

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SUGGESTED REMARKS: TWENTIETH ANNIVERSARY OF INTERPLANETARY FLIGHT, NASM, DECEMBER 13, 1982

THANK YOU AND GOOD EVENING LADIES AND GENTLEMEN. I AM DELIGHTED TO JOIN WITH THE PLANETARY SOCIETY, WHICH HAS DONE SO MUCH TO INCREASE PUBLIC AWARENESS AND UNDERSTANDING OF OUR PLANETARY EXPLORATION PROGRAM, IN THIS COMMEMORATION OF MARINER II'S ENCOUNTER WITH VENUS, 20 YEARS AGO TOMORROW.

MARINER'S 36 MILLION MILE JOURNEY TO THAT GLITTERING BEACON OF THE SOLAR SYSTEM, WAS MAN'S FIRST SUCCESSFUL VOYAGE ON THE INTERPLANETARY OCEAN. THIS HISTORIC MISSION NOT ONLY REVISED OUR VIEW OF THE DYNAMICS OF THE SOLAR SYSTEM AND OF INTERPLANETARY SPACE, BUT GAVE US A TRULY REMARKABLE PROFILE OF THE PLANET'S ATMOSPHERE AND SURFACE TEMPERATURES AND THE FIRST ACCURATE MEASUREMENT OF ITS MASS.

VENUS HAS INTRIGUED PEOPLE FOR MORE THAN 4000 YEARS. THE ANCIENTS THOUGHT OF IT AS TWO STARS BECAUSE OF ITS BRIGHTNESS IN BOTH THE MORNING AND THE EVENING SKIES. GALILEO DISCOVERED ITS PHASES IN 1610. AND COPERNICUS FALSELY CONCLUDED THAT THE PLANET WAS EITHER SELF-LUMINOUS OR ELSE TRANSPARENT TO THE RAYS OF THE SUN. EVEN THE USE OF GIANT TELESCOPES FAILED TO SOLVE VENUS' MYSTERIES, BECAUSE THE PLANET IS SHROUDED IN A THICK YELLOWISH-WHITE ATMOSPHERE.

BUT MARINER II, A SIMPLE, INDEED, ALMOST PRIMITIVE SPACECRAFT BY TODAY'S STANDARDS, TAUGHT US MORE ABOUT VENUS THAN WE HAD LEARNED IN THE PREVIOUS 4,000 YEARS OF OBSERVATION.

VENUS WAS REVEALED AS NO TWIN OF EARTH, AS HAD BEEN THEORIZED, BUT AS A VASTLY DIFFERENT PLANET. UNLIKE EARTH, IT HAS NO MAGNETIC FIELD AND AN EXTREMELY DENSE ATMOSPHERE COMPOSED OF CARBON DIOXIDE AND VIRTUALLY NO OXYGEN. BOTH ITS ATMOSPHERE AND SURFACE WERE FOUND TO BE VERY HOT. THE SURFACE TEMPERATURE, MORE THAN 400 DEGREES CENTIGRADE, OR ALMOST 800 DEGREES FARENHEIT, IS HOT ENOUGH TO MELT LEAD.

MARINER II ALSO MADE MAJOR DISCOVERIES ABOUT INTERPLANETARY SPACE, INCLUDING THE FACT THAT IT HAS A WEAK MAGNETIC FIELD THAT EXTENDS OUT FROM THE SUN. THE SPACECRAFT ALSO CONFIRMED THE EXISTENCE OF THE SOLAR WIND AND DISCOVERED THAT INTERPLANETARY DUST, SOMETIMES CALLED COSMIC DUST, WAS MUCH LESS ABUNDANT THAN WE HAD PREVIOUSLY THOUGHT, AND THUS, PRESENTS NO HAZARD TO SPACECRAFT.

SINCE MARINER II'S HISTORIC JOURNEY, THE RATE OF PROGRESS IN SPACE EXPLORATION HAS BEEN PHENOMENAL. IN ONLY 20 YEARS WE HAVE VISITED MOST OF THE PLANETS AND WILL HAVE EXPLORED ALL EXCEPT DISTANT PLUTO BY THE END OF THE DECADE. WE HAVE ONLY TO COMPARE SOME OF THE CHARACTERISTICS OF MARINER II WITH THOSE OF THE VOYAGER SPACECRAFT, WHICH WERE LAUNCHED IN 1977, TO GET A PICTURE OF HOW FAST AND FAR WE HAVE COME.

MARINER II WEIGHED 447 POUNDS AND CARRIED A 40-POUND PAYLOAD. THE VOYAGERS EACH WEIGHED 1817 POUNDS AND CARRIED A PAYLOAD OF 234 POUNDS. MARINER RETURNED TO EARTH SLIGHTLY MORE THAN 8 BITS OF DATA A SECOND FROM A DISTANCE OF 36 MILLION MILES. VOYAGER RETURNED FROM 50,000 TO 120,000 BITS A SECOND FROM A DISTANCE OF A BILLION MILES. MARINER'S LIFETIME WAS 129 DAYS. THE VOYAGERS HAVE LIVED FOR MORE THAN FIVE YEARS AND ARE STILL RETURNING DATA. AND WE EXPECT THEM TO LIVE ON FOR SEVERAL MORE YEARS.

OVER THE PAST TWO DECADES THE UNITED STATES' PLANETARY EXPLORATION PROGRAM HAS PRODUCED A WEALTH OF SCIENTIFIC KNOWLEDGE, UNSURPASSED IN ANY ERA OF HUMAN HISTORY. BUT AS WE ALL KNOW, MUCH REMAINS TO BE DONE. THE CHALLENGES OF NEW MISSIONS, NEW DISCOVERYS, NEW VISITS TO WORLDS ONCE VISITED ARE ALL THERE. AND ONCE AGAIN, VENUS IS IN THE CENTER OF OUR THOUGHTS AND PLANS.

ONE OF THE MANY SOLAR SYSTEM EXPLORATION MISSIONS WE ARE STUDYING SERIOUSLY IS A RETURN TO VENUS IN THE NEAR FUTURE. THIS TIME IT WOULD NOT BE FOR A QUICK FLYBY, BUT FOR AN EXTENDED STAY. OUR VENUS RADAR MAPPER SPACECRAFT WOULD ORBIT THE PLANET, STUDY IT IN DETAIL AND USE RADAR TO MAP ITS SURFACE.

INDEED, WE BELIEVE OUR WORK HAS ONLY BEGUN.

AS H.G. WELLS ONCE WROTE: "FOR MAN THERE IS NO REST AND NO ENDING. HE MUST GO ON - CONQUEST BEYOND CONQUEST; AND WHEN HE HAS CONQUERED ALL THE DEPTHS OF SPACE AND ALL THE MYSTERIES OF TIME, STILL HE WILL BE BEGINNING."

THANK YOU VERY MUCH.